

Abstract

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Correlation of total antioxidant capacity in seminal plasma with sperm motility of infertile men

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OBJECTIVE: To evaluate the correlation of total antioxidant capacity (TAC) in seminal plasma with sperm motility in infertile men, and explore the clinical significance of TAC in seminal plasma in male fertility.

METHODS: One hundred and thirteen infertile men with normal sperm density were included in the experiment group and 28 fertile men in the normal control. The seminal parameter analysis was performed by computer-assisted semen analysis (CASA) system. Seminal plasma TAC was measured with spectroscopic analysis.

RESULTS: Seminal plasma TAC was (14.37 +/- 8.45) U in the infertile men with normal sperm density and (19.82 +/- 6.33) U in the fertile control. Compared with the fertile men, seminal plasma TAC in the experiment group was significantly lower ($P < 0.01$). There was significant correlation between seminal plasma TAC and sperm motility, grade a sperm ($r = 0.208$, $P < 0.05$), grade (a + b) sperm ($r = 0.231$, $P < 0.05$), straightness (STR) ($r = 0.200$, $P < 0.05$), linearity (LIN) ($r = 0.208$, $P < 0.05$), curvilinear velocity (VCL) ($r = 0.189$, $P < 0.05$), straight line velocity (VSL) ($r = 0.210$, $P < 0.05$), average path velocity (VAP) ($r = 0.215$, $P < 0.05$), and beat cross frequency (BCF) ($r = -0.248$, $P < 0.01$). There was no significant correlation among the average motion degree (MAD), the amplitude of lateral head displacement (ALH) and wobbly (WOB).

CONCLUSION: TAC in seminal plasma is closely related to male fertility, appropriate TAC provides a favourable environment for sperm swimming. The decreased level of TAC in seminal plasma may be one of the causes of male infertility. The analysis of TAC in seminal plasma may afford valuable evidence in exploring the mechanism of male infertility and in clinical medication.

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